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ABSTRACT

A study examined how to teach computer skills to future professionals in communications. The context of the study was the communications department in a mid-sized Finnish university. Data was collected on computer use and attitudes to computers and computer-mediated communication by means of surveys and learning journals during the Communications Technology Courses arranged in 1994-1998; follow-up data was gathered by means of email during spring semester 1998. Yearly improvement in the computer skills of university entrants was noted. An analysis of the journals revealed four types of learners: I-know-nothing-about-computers, computers-are-not-for-me, computers-are-tools, and I-know-just-about-everything-about-computers. Most of the university entrants with poor self-reported computer skills and a negative attitude to computers reported better computer skills and a more positive attitude to computers within weeks or months after entering the university. Most of the entrants with good skills and a positive attitude reported better skills and even more positive attitudes. An analysis of the reasons for changes ("turning points") in the students' computer use and attitudes highlights peer group influence (email contacts with friends and direct help from friends), access to computers, courses (the Communications Technology Course and other courses), and learning-by-doing. The students showed differences in perceived usefulness of the Communications Technology Course, in computer anxiety and in the adoption of an overly critical attitude to computers. In contrast, gender differences were small. As future communications professionals, the students were highly motivated to become confident users of computers. Contains 13 references. (Author/RS)

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Learning to Use Computers for Future Communication Professions

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Learning to Use Computers for Future Communication Professions

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Abstract

How to teach computer skills to future professionals in communications? The context of the present study is the communications department in a mid-sized Finnish university. Data has been collected on computer use and attitudes to computers and computer-mediated communication by means of surveys and learning journals during the Communications Technology Courses arranged in 1994–1998; follow-up data have been gathered by means of email during spring semester 1998. Computer skills of university entrants have become dramatically better from year to year. An analysis of the journals revealed four types of learners: I-know-nothing-about-computers, computers-are-not-for-me, computers-are-tools, I-know-just-about-everything-about-computers. Most of the university entrants with poor self-reported computer skills and a negative attitude to computers report better computer skills and a more positive attitude to computers within weeks or months after entering the university. Most of the entrants with good skills and a positive attitude report better skills and even more positive attitudes. An analysis of the reasons for changes ("turning points") in the students' computer use and attitudes highlights peer group influence (email contacts with friends and direct help from friends), access to computers, courses (the Communications Technology Course and other courses), and learning-by-doing. The students showed differences in perceived usefulness of the Communications Technology Course, in computer anxiety and in the adoption of an overly critical attitude to computers. In contrast, gender differences were small. As future communications professionals, the students were highly motivated to become confident users of computers.

Learning to Use Computers for Future Communication Professions

Introduction

During the 1990´s, computers and computer-mediated communication have become ubiquitous both at workplaces, institutes of learning, and homes. Old tools have rapidly been replaced with new, digital tools. New tools require learning of new skills. A learning task of this size is unprecedented—with winners and losers.

University entrants are not all alike. They come from many kinds of homes and schools. Some homes and schools are highly computerized and with Internet connections, whereas others have no computers—or outdated equipment. Many studies have shown that the attitudes to computers of those who have taken computer courses or own a computer are more positive than of those who did not. They also have more commitment to learn more about computers. (E.g. Geissler & Horridge, 1993; Janssen Reinen & Plomp, 1997; Selwyn, 1998.) Computer skills are among those that enhance the student's chances on the labor market (de Weert, 1996).

The present paper addresses the adoption of computers and computer-mediated communication by students in a department of communication. The paper also addresses the university students´ attitudes to computers and computer-mediated communication. Special attention is given to changes ("turning points") in their computer use and attitudes. From the perspective of teaching and curriculum planning, the question raised in this paper is: How to teach computer skills to groups of heterogeneous students?

Methods

The present study has been carried out at the communications department of a mid-sized Finnish university. The students prepare themselves for professions in journalism, speech communication, and organizational communication & PR. To be able to work in their future professions, the students need to learn various computer and computer-mediated communication skills, such as word processing, desk-top publishing, drawing and image processing, email, WWW browsing, and web page construction.

Computer use as well as attitudes to computers and computer-mediated communication have been investigated by means of data gathered from the Communications Technology (CT) Course arranged in 1994–1998 and follow-up data gathered by means of email. The study makes use of three data sets. (1) Survey data of computer and computer-mediated communication skills of students when entering the university, gathered at the Communications Technology Course in 1994–1998 (N = 201, the data for 1995 are missing). (2) Learning journals (N = 205) written by students during the CT course in 1994–1997. (3) Email responses (N = 96) to questions on the students' current use of computers and their current attitude to computers gathered in 1998, complemented with recollections of the time when they took the course in communications technology (1 to 4 years ago). The students were also asked to describe a possible change in their attitude to computers and to give reasons for the change. The Finnish email responses have been translated into English by the present writer.

Both qualitative and quantitative analyses of the data have been carried out. On the basis of email responses, where the students call to mind and describe their computer use and attitudes at the time they entered the university, they have been divided to novice, intermediate and confident computer users and to those with a positive, neutral or negative attitude to computers.

Results

Computer Use

The results of the survey (data set 1) show that there is much variation in the computer skills of the university entrants. Some students report that they have been using computers for more than 10 years; others say that they have never used a computer (only looked at others using them). In general, each year more and more students have already used computers when they start their studies. More than 80% of the students used a word-processor in 1994; by 1997 100% was reached. By 1996, more than half of the students had used a drawing program and by 1998 about half of them had used a desk-top publishing program when starting the CT course.

Figure 1 displays the percentage of students who report they had used email, browsed the World Wide Web, and constructed web pages when they started their studies. Skills in web page construction were not asked before 1997.

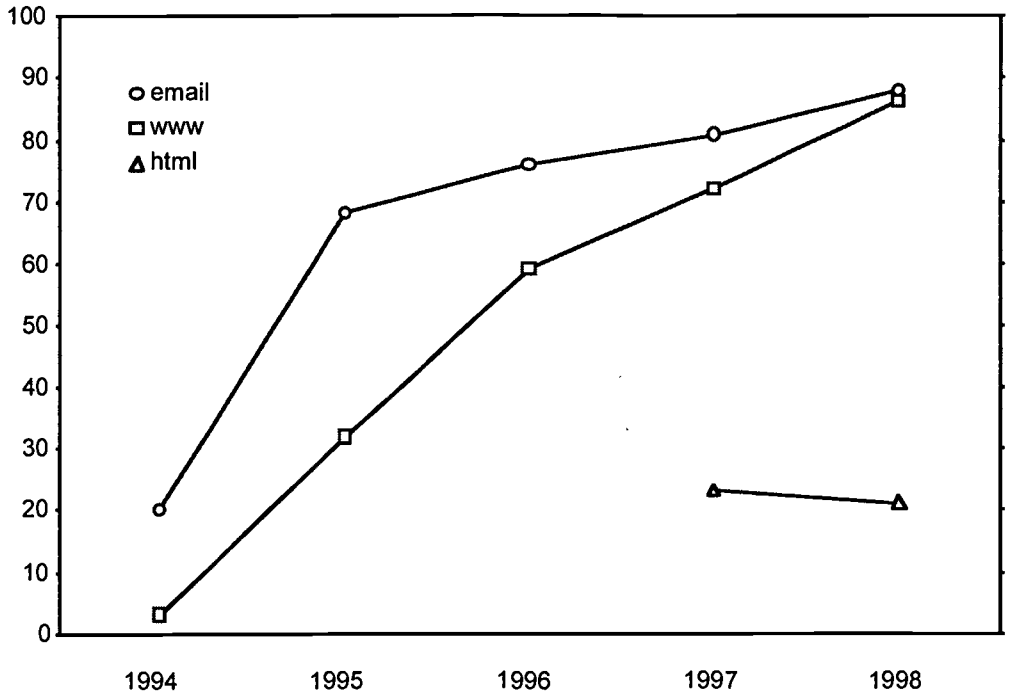

Figure 1. Percentage of students who report they had used email, browsed the World Wide Web, and constructed web pages when they started the CT course in 1994–1998; indicated by email, www, and html, respectively.

Figure 1 shows that by 1995 the majority of students reported to be familiar with email use, by 1996 with WWW use. Today, few students are unfamiliar with these skills when they start their university studies.

The computer skills of students entering the department have become more versatile in a period of five years: by 1994 the majority had experience in word processing, by 1995 in email programs, by 1996 in drawing programs and WWW browsers. By 1998 about half of them had used a DTP program and a growing number had constructed web pages. Such skills are increasingly learned before entering the university, at homes, schools and workplaces. Nevertheless, the survey also shows that not all students are confident computer users when entering the department.

User types

Students show differences in their attitude toward computers and digital technology. An analysis of the journals (data set 2) written at the Communications Technology Course during their first semester of studies revealed four types of learners (Hurme, 1997).

I-know-nothing-about-computers. Some students are inexperienced with computers. They have typically had little access to computers at their homes and for some reason they have not profited from computer instruction in elementary and secondary school.

Computers-are-not-for-me. Some students are anxious about computers. They may have had bad learning experiences in secondary school. In some schools, a technical approach to computers prevails or used to prevail with emphasis on DOS and programming languages. Some students appear to rationalize their fear with a vague "humanistic" position against computers.

Computers-are-tools. Many students simply regard computers as a useful tools. These students have often had ample access to computers at home and/or in secondary school. Some of them have used computers at work.

I-know-just-about-everything-about-computers. There are also computer "nerds" among the students. They know much about computers and are highly interested in computers and other aspects of communications technology. These "power users" may have been using computers for 10–15 years by the time they enter the university. Sometimes they tend to think that others are like them.

Changes

In their email responses (data set 3), the students call to mind and compare their computer use at the time they took the Communications Technology course and in the spring of 1998. They also describe a possible change in their attitude to computers; many of them describe reasons for changes too.

More than half of the students already had a positive attitude to computers when they started the CT course. Many of these students, however, reported that since then their attitude had become even more positive. The students who had a negative attitude when they started the CT course almost invariably reported a more positive attitude to computers at the time of data collection. In some cases a student experienced a change in her or his life-style.

> *I feel more secure when using a computer.*
> *Now I coudn't live without a computer.*
> *My relationship to computers has become passionate.*

The students reported that they used computers more, making use of many applications and operating systems. They widely used word-processors, email and WWW. Many of them regarded computers as everyday tools.

A computer is no longer something that I have to force myself to work with but a tool – just like a knife and a fork.

Many reasons for attitude changes were given in the email responses. Four categories of reasons emerge: (1) peer group, (2) accessibility, (3) courses, and (4) learning-by-doing.

Peer group. Email contacts with friends and help from peers were frequently mentioned as reasons for change. The students often mentioned not only email use but specifically the use of email for communication with fellow students and for maintaining contacts with their friends.

I use email all the time, for the most part to keep contact with my old friends, who study in all parts of the country.
When I started my studies I didn't use email much. Soon I realized its potential in keeping contact with my friends.
Email is now a self-evident part of my life.
I'm really addicted to email.

Many students received help from their peers—friends, room-mates, and spouses:

I have learned from other students more than during courses.
The biggest reason for my increased computer use and more positive attitude is my boyfriend: encouragement, help – and his computer.
During the last months or so I have learned much about computers. The main reason is my room-mate, who studies computer science.

Access. The second category comprises access to university and home computers (and access to the Internet through them).

I really appreciate the free access to university computers. I've been able to test programs.
The right to use email (and the ease of using it) contributed to my learning.

Many students had a computer of their own or they acquired one during their first semester at the university.

First, my attitude to computers was somewhat negative. They were always occupied or unwilling to cooperate with me. I bought a computer of my own and by practicing got rid of such problems
My attitude to computers has probably changed most due to acquiring a computer of my own.

Courses. Courses were given as reasons for change, too. The Communications Technology Course was crucial in changing the attitude of some students, whereas others felt that it was useless.

The CT course was a springboard for my university studies. I got the courage to start using computers.
The CT course was useless to me. I learned nothing.

For many students, other courses gave an incentive to start learning about computers. Some refer to a general need to use computers in university studies.

I'm taking courses in interactive multimedia. There the learning possibilities are infinite.
Our "virtual course" in intercultural communication with students from the University of Iowa really helped me see the potential of computer-mediated communication.
At the university, you study more and more by means of computers. Therefore, I changed.
I use computers more. I believe it's due to the courses I'm taking. They presuppose computer use—and I have to admit that I'm quite interested in computers.
I realized that I very much needed a computer in my studies and in my work. It boosted my learning.

Learning-by-doing. A further reason for change in computer attitudes is what the students often refer to as learning-by-doing. They realize that the only way to learn using computers is to get exposed to computers and start actively using them (not just watching others do, as some of them appear to have done in secondary school):

I now better realize the potential of computers. I have achieved the change myself, learning-by-doing.
I have learned by doing, practicing and getting gradually further in the art of controlling a computer. I no longer have to start from scratch every time something goes wrong.

In sum, the students give many kinds of reasons for changes in their computer attitudes and use: they emphasized peer group influence (email contacts with friends and direct help from friends), access to computers, courses (the Communications Technology Course and other courses), and learning-by-doing. They emphasize their motivation to become confident users of computers.

Differences

There were naturally differences in computer use and attitudes to computers. Below, four areas of differences are described: efficiency of learning at the CT course, computer anxiety, gender, and a critical attitude to computers.

Course. Who profited from the CT course? Novice and intermediate users mention the course as a reason for change. So do those with a negative or neutral attitude. Thus, the course appears more useful for novice users and those with a negative attitude than for confident users and those with a positive attitude. Those with a positive attitude and/or more confidence in using computers often prefer independent learning.

Computer anxiety. Some students had a negative attitude to using computers or they felt anxious about using a computer when they started the CT course. For the most part, they had the courage to start using computers like their fellow students. In some cases, however, some anxiety persisted.

I now have more courage, but I still feel clumsy when trying to do something I don't master.

I still have some fear left.

Some students brought up the issue of control. They apparently felt anxious about losing control to the computer.

Computers are OK, as long as I'm the boss.
Now I'm in control, not the computer.

In rare cases the anxiety took an extreme form. Anxiousness in combination with low self-esteem severely hampered studies.

I didn't participate in the CT course because I had too poor computer skills.

Gender. Three fourths of the students are female. On the whole, the students' computer use and attitudes appear not to be gendered. It is true that some female students showed stereotypically female reluctance to use computers and negative attitudes, but so did some male students. On the other hand, many female students were were or became confident users. Their learning journals and email responses gave in many cases evidence for remarkable improvement and attitude change.

My attitude is totally different now as compared to early 90's when I was forced to write school essays with a computer. Computers are now vital for me – I love to use them also during my spare time.

Critical attitude. Some of the students expressed critical views on computers and the information society. These students typically were confident computer users. Often the criticism was vague:

I have grown more critical about communications technology.
Computers are a threat to the future.
Life is outside of computers.

Some students appear to take a moral standpoint against using computers for fun, for something else than work.

I just can't understand people who like to chat all day long.

These differences indicate that the students are "segmented". Therefore, various learning possibilities and methods are needed in the curriculum. For instance, some students need courses, others prefer to study on their own. Some need support to overcome their anxiety, whereas some are confident, even arrogant, in their computer use.

Discussion

The computer skills of communications students starting their studies have become more versatile in a period of five years (1994–1998). Five years ago only few students wrote their term papers with a word processor and communicated with staff and each other by email.

Now these skills (and others) often have been learned by the time the students enter the department or the skills are picked up during the first semester. Obviously, these changes are not isolated: computers have diffused into homes, schools and workplaces. In Finland as in other countries, much effort is currently given to help all students in elementary and secondary schools to become computer and media literate. In fact, there are indications that younger pupils have greater experience with computers and more positive attitudes to computers than older pupils (e.g. Comber, Colley, Hargreaves & Dorn, 1997).

Many of the students show profound and fast changes in their computer use and attitudes. In view of the considerable literature on computer anxiety (for a summary of such studies see e.g. Scott & Rockwell, 1997), this relative ease of acquiring new skills may seem surprising. Above, peer group, access to computers and courses/studies have been identified as contributors to an increase in computer use and to more positive attitudes. A further reason is probably motivation: students preparing themselves for a profession in communications are well motivated to learn to use computers and overcome any remnants of computer anxiety. Yet another reason for change stems from recent technological developments: Some students recall with anguish their experiences with non-graphical operating systems and programs. In fact, many of the older studies of computer anxiety probably describe the confrontation of pupils and students with a non-technical background and "command line interface" computers. Modern computers are simply easier to use.

The genderedness of computer use and attitudes is a controversial topic (e.g. Jenkins, 1998). It is evident that youth culture is gendered with respect to computers: in secondary schools computer enthusiasts are typically boys, whereas girls often keep a distance to computers. Collis (1985) has suggested that girls in high school tend to deny their individual abilities, while simultaneously agreeing that, collectively, they are as competent as males. Collis describes this behavior as the "We can, but I can't" paradox. However, it is also evident that there is much variation in computer skills both among boys and girls and—and, as seen in this paper, both among male and female students. Irrespective of gender, practically all students of communications pick up basic skills of computer use in a couple of months. These results agree with those of Durndell and Thomson (1997:1), who in a study of 16-18 year olds, come to the conclusion that reported use of computers in school has risen to a non gender differentiated level, whereas domestic use or computers remains highly gendered.

In sum, much can be done to help students learn to use computers and adopt a more positive attitude to computers.

- A non-threatening, supportive and communicative environment (typically involving the use of email) can be created in student (peer) groups.

- Face-to-face communication between staff and students can be complemented by means of communications technology (email and intranets).
- The use of computers can be made free, not resctricted to assignments; the students can be encouraged to explore the possibilities computers offer, e.g. surf in the World Wide Web.
- The students can be given access to university computers and the internet routinely, in connection with courses.
- The use of computers can be facilitated and encouraged in many study-related tasks (e.g. in writing term-papers and conducting library searches).
- An effort can be made to provide students with modern computer facilities.
- The students can be encouraged to acquire home computers, which need not be very expensive. They can usually can get help from university staff and their friends in e.g. setting up an internet connection.
- Courses in communications technology can be arranged for students who prefer learning at courses.

The social aspects of learning to use computers were important to the students in the present study. Computer-mediated communication, especially email, with fellow students and with the faculty was highly motivating and rewarding for them. An emphasis on operating systems and programming languages may work well when teaching future computer programmers, but an emphasis on communication through computers apparently works better when teaching future communications professionals. In fact, computer education should be integrated into the curriculum, "so that students perceive the relevance of computing techniques on their own domain and their motivation rises" (Lillie, 1992).

In the working life of the future, abilities such as the following will probably be accentuated: learning, adapting oneself to deep-going changes, working in groups, finding information, communicating face-to-face and by means of computers (cf. Veiga & Dechant, 1997). These abilities are largely based on learning and communication.

University education is changing, too: "We are witnessing a trend from teaching primarily in a lecture mode, classroom-based, homogeneous students in a fixed location, to working with larger numbers spread over a wide geographic area, and utilizing varied instructional methods" (Beaudoin, 1998). It is possible that in the future full-time students spend less time on campus than they do now. For their distance studies they need computer-mediated communication.

It is important to realize that beside computer-mediated communication, students of communication need to develop their skills in face-to-face communication: "high tech" needs

to be complemented with "high touch". High touch helps transform "computers" into "communicators". High tech combined with high touch creates empowered individuals for the workplaces of tomorrow (and increasingly of today) where learning, group work, networking, and comfort with digital technology are valued.

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